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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,553

06/24/2003

Tohru Kohda

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09/22/2004

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EXAMINER

KIM, PETER B

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,553

Applicant(s)

KOHDA ET AL.

Examiner

Peter B. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 62003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: It is not clear whether page 2 describes Fig. 13 as stated or Fig. 1. The reference numbers on page do not match the reference numbers of Fig. 13. Also on page 2, 11a denotes an XYZ coordinate system in the figures. Mask stage stool 3 described on page 11 is not shown in the figures.

Appropriate correction is required.

Claim Objections

Claims 5, 11, and 17 are objected to because of the following informalities: the written description does not include adequate teaching for a projection magnification correction mechanism. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyachi (H1774) in view of Ota et al. (Ota) (6,727,980).

Miyachi discloses a scanning exposure apparatus (Fig. 1) comprising: an illumination optical system (ref. 1-6) for illuminating a pattern on a mask (7) using illumination light; a projection optical system (11) for projecting the pattern on the mask illuminated by said illumination optical system onto a plate (12); a mask stage (9) for scanning the mask; a plate

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stage (14) for scanning the plate, said scanning exposure apparatus scanning said mask stage and plate stage synchronously relative to said projection optical system (col. 4, lines 45-50); a mask support mechanism for supporting a peripheral of the mask (see Fig. 1 and 8); a mask stage tilt mechanism (Fig. 8A, 8B) for arranging the pattern in an area illuminated by the arc-shaped illumination light in an object-surface-side focal plane of said projection optical system, wherein the mask deforms due to its own weight from the peripheral supported; and a plate stage tilt mechanism (Fig. 8A, 8B) for arranging a surface of the plate in an object-surface-side focal plane of said projection optical system which plane images the pattern in an area illuminated by the arc-shaped illumination light, wherein the mask deforms due to its own weight from the peripheral supported. Miyachi discloses the mask support mechanism that supports the mask at two sides parallel to scan direction (Fig. 1, 8), the tilt mechanism that tilts the mask and plate relative to the scan direction by tilting a stage stool (ref. 9 and ref. 14). Miyachi discloses method for illuminating a pattern on a mask and projecting it on to a plate, comprising steps of measuring focus position (col. 21, lines 55-61), interpolating a measurement result and calculating a tilt angle for tilting the mask and/or plate and correcting tilt of a mask and exposing an actual mask (col. 21, lines 45-67)

However, Miyachi does not disclose an arc-shaped light and the mask and plate moving at a speed ratio corresponding to the magnification of the projection optical system. Ota discloses in Fig. 5, arc-shaped light and in col. 20, lines 29-49, moving the mask and plate at a speed ratio corresponding to the magnification of the projection optical system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide scanning the mask and the plate at a speed ratio corresponding to the magnification in order to

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obtain a reduced image on the plate and to use only the area having least effects of various optical aberrations in the projection optics as taught by Ota in col. 12, lines 1-14.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim
Primary Examiner
Art Unit 2851

September 16, 2004